

WHAT IS CLAIMED IS:

1. A clock generator circuit, comprising: /

a multi-phase clock signal generator for generating a plurality of clock signals having a same frequency but difference phases according to a reference clock signal;

a modulation device for generating a phase modulation signal through Delta-Sigma modulation; and

a phase modulator, which is electrically coupled to the modulation device, for selecting one of the clock signals to be a modulated clock signal according to the phase modulation signal.

2. The clock generator circuit according to claim 1, wherein the modulation device further comprises a modulation value generator for generating a modulation value and a Delta-Sigma modulator for generating the phase modulation signal according to the modulation value.

3. The clock generator circuit according to claim 2, wherein the modulation value is for controlling the average frequency of the modulated clock signal.

4. The clock generator circuit according to claim 2, wherein the modulation value generator is for generating a modulation value according to the

modulated clock signal.

5. The clock generator circuit according to claim 4, further comprising a divider for dividing the modulated clock signal and outputting to the modulation value generator.

5 6. The clock generator circuit according to claim 1, wherein the multi-phase clock signal generator is a first phase-locked loop.

7. The clock generator circuit according to claim 6, wherein the first phase-locked loop comprises a phase frequency detector, a charge pump, a loop filter, and a voltage controlled oscillator.

10 8. The clock generator circuit according to claim 1, wherein the phase modulator comprises:

a phase selector for selecting two clock signals out of the clock signals;

and

a phase interpolator for outputting the modulated clock signal

15 according to the two clock signals through phase interpolation.

9. The clock generator circuit according to claim 8, wherein the phase of the two clock signals is adjacent.

10. The clock generator circuit according to claim 1, wherein the phase modulator comprises:

a phase interpolator for generating a plurality of phase-interpolated clock signal according to the clock signals through phase interpolation; and

a phase selector for selecting one of the phase-interpolated clock signal to be the modulated clock signal.

- 5 11. A method for generating a modulated clock signal, comprising the steps of:

generating a plurality of clock signals having a same frequency but difference phases according to a reference clock signal;

generating a phase modulation signal through Delta-Sigma modulation;

- 10 outputting a modulated clock signal through selecting one of the clock signals according to the phase modulation signal.

12. The method according to claim 11, wherein an average frequency of the modulated clock signal is controlled by adjusting the modulation signal.

- 15 13. The method according to claim 11, further comprising a detection step of determining a value of the modulation signal by detecting the modulated clock signal.

14. The method according to claim 11, wherein the step of outputting the modulated clock signal comprises:

selecting two clock signals out of the clock signals; and

outputting the modulated clock signal according to the two clock signals through phase interpolation.

5 15. The method according to claim 14, wherein the phase of the two clock signals is adjacent.

16. The method according to claim 11, wherein the step of outputting the modulated clock signal comprises:

generating a plurality of phase-interpolated clock signal according to the clock signals through phase interpolation; and

10 selecting one of the phase-interpolated clock signal to be the modulated clock signal.

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